DB404

BROAD BAND ANTENNA
3.8 or 5 dB GAIN, 406-512 MHz

DECIBEL

An extremely rugged antenna that can survive winds to 125 mph (201 km/hr), the DB404 provides a broad bandwidth from 14 to 24 MHz in the 406-512 MHz frequencies. It can be mounted to the top or side of a tower.

The broad bandwidth feature makes the DB404 ideal for duplex operation. Also, it allows the antenna to be ordered in advance of frequency assignment.

Radiation Patterns

The DB404 has two stacks of unique dual dipole radiating elements, which are designed to improve collinearity and efficiency of the array. A binary cable harness, protected by VAPOR-BLOC®, insures equal inphase signal distribution to all elements.

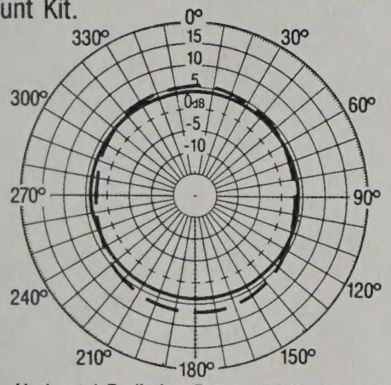
When the dual dipoles are mounted in line, collinearly, on the mast, the antenna produces an elliptical pattern with 5.0 dB gain. When the top dual dipoles are positioned at a 90° angle from the bottom elements, an omnidirectional pattern results with 3.8 dB gain. The patterns can be changed in the field with ordinary hand tools.

The patterns are changed significantly when the antenna is side mounted, as shown in the pattern diagrams.

The antenna is almost immune to lightning damage because it is metal and all elements operate at DC ground.

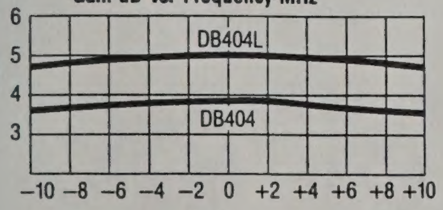
Ordering Information

Please specify frequency or frequency range. Order DB404 for an omni pattern with 3.8 dB gain, DB404L for an elliptical pattern with 5.0 dB gain. DB365 Mounting Clamps are included to fit round members up to 2.75″ (69.85 mm) OD, angle members up to 2″ (50.8 mm). For side mounting, order DB5007 Side Mount Kit.



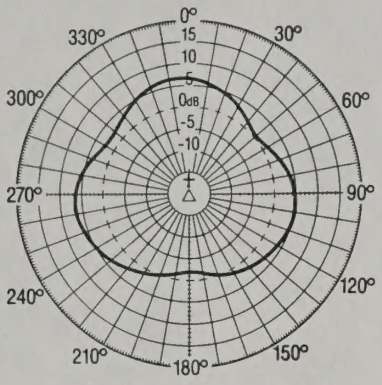
Horizontal Radiation Pattern DB404(—) and DB404L(— — —).

Gain-dB vs. Frequency-MHz

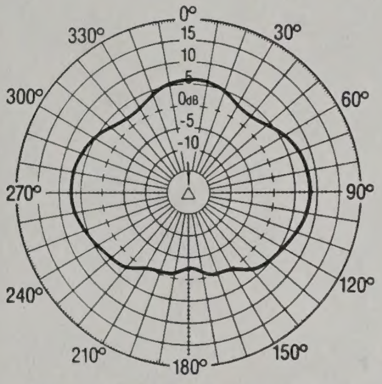


Side Mounted

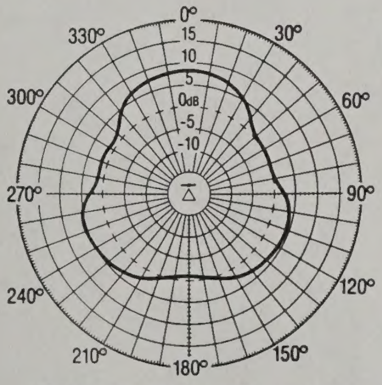
Typical pattern shape of the antenna side mounted on a tower with an 18″ (457.2 mm) face. The patterns for 12″ (304.8 mm) and 24″ (609.6 mm) towers will be similar.



DB404 (Omni) mounted on side of tower



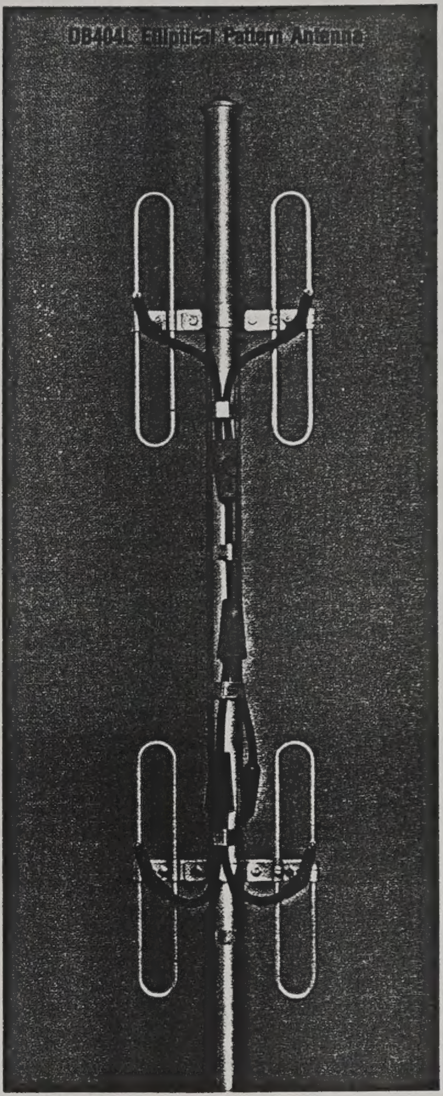
DB404L elements pointed toward tower



DB404L elements broadside to tower

Electrical Data

Frequency Ranges — MHz	406-420, 450-470, 470-488, 482-494, 488-512
Bandwidth	Same as above
VSWR	1.5 to 1 or less
Nominal impedance — ohms	50
Gain (over half-wave dipole) — dB	See curves
Rated power input — watts	250
Vertical beamwidth (half power)	27°
Lightning protection	Direct ground
Standard Termination: Captive Type N-Male attached to end of flexible lead. Other fittings are available on special order.	



Mechanical Data

Materials:	
Mast (aluminum) — in. (mm)	1.75 (44.45) OD with .062 (1.575) to .125 (3.175) wall
Radiating elements (aluminum) — in. (mm)	.375 (9.525) OD with .058 (1.473) wall
Mounting clamps (galvanized steel)	DB365
Maximum exposed area (flat plate equivalent) — ft^2 (m^2)	1.14 (28.96)
Wind rating:	
Survival without ice — mph (km/hr)	over 125 (201)
Survival with .5″ (12.7 mm) radial ice — mph (km/hr)	over 125 (201)
For 3 dB degradation — mph (km/hr)	over 125 (201)
Lateral thrust at 100 mph (161 km/hr) — lbs. (kg)	45.5 (20.64)
Bending moment at top clamp at 100 mph (161 km/hr) — ft. lbs. (kg m)	62 (8.58)
Overall length (450-470 MHz) — ft. (m)	5 (1.52)
Net weight (w/clamps) — lbs. (kg)	14 (6.35)
Shipping weight (w/clamps) — lbs (kg)	24 (10.89)

NOTE: The mechanical specifications are slightly degraded for the antenna covering the 406-420 MHz band.